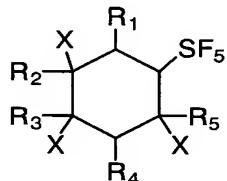


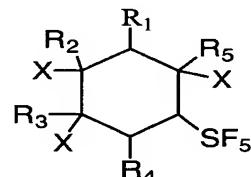
CLAIMS

1. A process for making pentafluorosulfuranyl arlenes which comprises:
 5 effecting dehydrohalogenation or dehydrogenation of a halogenated
 pentafluorosulfuranyl compound represented by either of the structures:

A



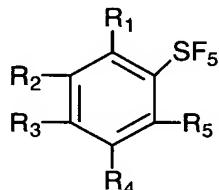
B



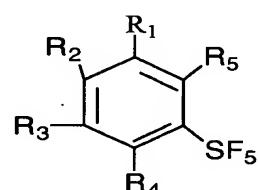
or

- 10 to form compounds represented by either of the structures:

C



D



or

wherein R₁₋₅ are H, halogen, e.g., Cl, or Br; C₁₋₁₀ alkyl, C₁₋₁₀ alkoxy, C₁₋₁₀ thionyl.

- 15 C₁₋₁₀ alkyl ether, aryl and substituted aryl, thioether, sulfonyl, carboalkoxy, alkylamino, arylamino, alkylphosphoryl, alkylphosphonyl, aryphosphonyl, and arylphosphoryl etc and X is a halogen atom.

2. The process of Claim 1 wherein R₁₋₅ are H.

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- 3 The process of Claim 2 wherein X is selected from the group consisting of Br and Cl or a mixture thereof.

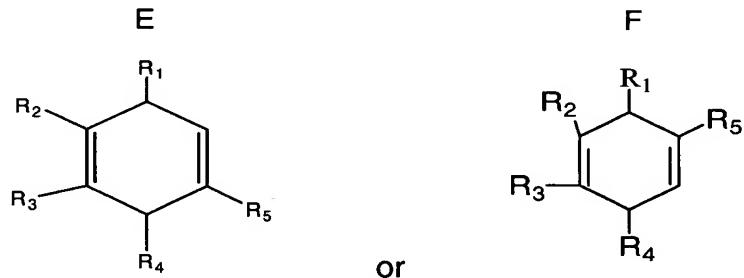
- 25 4. The process of Claim 3 wherein compounds C and D are formed by effecting dehydrohalogenation of compounds represented by the structures A or B.

5. The process of Claim 4 wherein X is bromine.

6. The process of Claim 5 wherein dehydrohalogenation is effected by reaction of compounds represented by the structures represented by the structures A
5 and B with powdered sodium hydroxide.

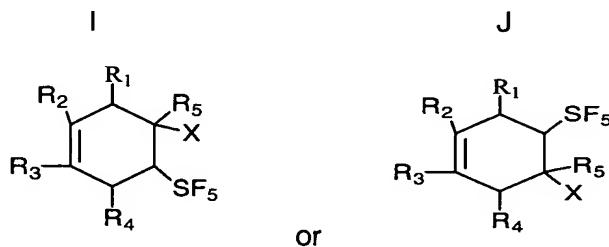
7. The process of Claim 1 wherein the halogenated pentafluorosulfuranyl compounds for forming the pentafluorosulfuranyl arylanes are formed by a two step process which comprises:

10 (a) reacting SF₅X with a compound represented by either of the structures:



leading to the formation of compounds represented by either of the structures:

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wherein R₁₋₅ are H, halogen, e.g., Cl, or Br; C₁₋₁₀ alkyl, C₁₋₁₀ alkoxy, C₁₋₁₀ thionyl, C₁₋₁₀ alkyl ether, aryl and substituted aryl, thioether, sulfonyl, carboalkoxy, alkylamino, 20 arylamino, alkylphosphoryl, alkylphosphonyl, aryphosphonyl, and arylphosphoryl, etc. and X is Br or Cl.

and then,

(b) halogenating the thus formed compounds represented by the structures I and J produced in step (a) by reaction with Cl₂, Br₂, or I₂ to form compounds represented 25 by the structures A and B.

8. The process of Claim 7 wherein R₁₋₅ are H.

9. The process of Claim 8 wherein step (a) is carried out using SF₅Br as the reactant.

5 10. The process of Claim 9 wherein a free radical initiator is used to catalyze the reaction of SF₅Br with compound represented by the structures E or F.

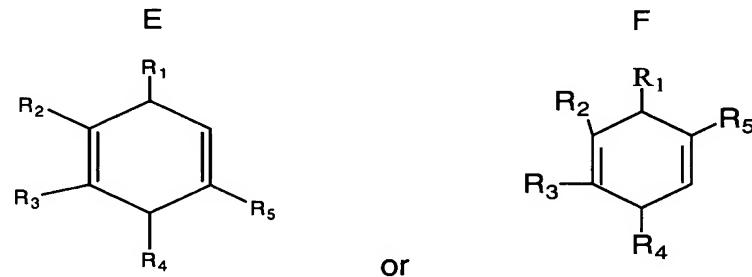
10 11. The process of Claim 10 wherein the free radical initiator is triethyl borane.

10 12. The process of Claim 11 wherein halogenation in step (b) is carried out using Br₂ as the halogenating agent.

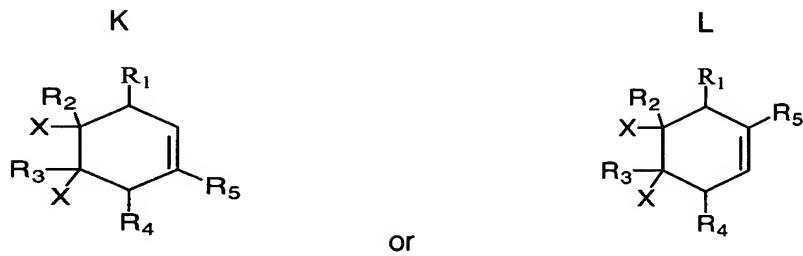
15 13. The process of Claim 12 wherein compounds represented by the structures C and D are formed by effecting dehydrohalogenation of compounds represented by the structures A and B by reaction with powdered sodium hydroxide.

20 14. The process of Claim 1 wherein the halogenated pentafluorosulfuranyl compounds for forming the pentafluorosulfuranyl arynes are formed by a two step process which comprises:

(a) halogenating a compound represented by the structures:



25 leading to the formation of compounds represented by the structures:



wherein R₁₋₅ are H, halogen, e.g., Cl, or Br; C₁₋₁₀ alkyl, C₁₋₁₀ alkoxy, C₁₋₁₀ thionyl.

- 5 C₁₋₁₀ alkyl ether, aryl and substituted aryl, thioether, sulfonyl, carboalkoxy, alkylamino, arylamino, alkylphosphoryl, alkylphosphonyl, aryphosphonyl, and arylphosphoryl, etc. and X is Br or Cl.

and then,

- (b) reacting the thus formed compounds K and L produced in step (a) by
10 reaction with SF₅X to produce compounds represented by the structures A or B.

15. The process of Claim 14 wherein R₁₋₅ are H and X is Br.

16. The process of Claim 15 wherein step (a) is carried out using SF₅Br as
15 the reactant and a free radical initiator is used to catalyze the reaction of SF₅Br with the compounds represented by the structures K or L.

17. The process of Claim 16 wherein the free radical initiator is triethyl
borane.

- 20 18. The process of Claim 16 wherein C and D are formed by effecting dehydrohalogenation of compounds represented by the structures K and L by reaction with powdered sodium hydroxide.

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